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PERFORMANCE OF SWEETPOTATO MARKETING SYSTEM IN UMUAHIA MARKET, ABIA STATE, NIGERIA.

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ABSTRACT
The study was carried out to evaluate the profitability of sweetpotato in the market among other objectives. One hundred wholesalers and one hundred retailers respectively were randomly selected in the market. Economic indices used to evaluate the marketing system included the marketing margin, marketing efficiency, return on investment, benefit cost ratio and the Gini coefficient. The results of the marketing margin were N6, 300.00 and N4,010.00 respectively for wholesalers and retailers. Benefit – cost ratio showed that an investor would gain N1.15 and N1.08 respectively for every N1.00 spent in marketing sweetpotato. The Gini coefficient showed inequality in income distribution thus signifying an imperfect competitive market. Government policies should be directed towards reducing transportation costs, rent charged by the Local Government Authority and provision of micro credit for the traders to expand their purchases.

KEYWORDS: Sweetpotato, Economic indices, Marketing margin, investment, Umuahia

INTRODUCTION

Sweetpotato (*Ipomoea batatas* (L.) Lam.) is an important crop in many countries and has been cultivated for food, animal feed and industrial raw material. It originated from Central Africa (Nwauzor and Afuape 2005) and is the only member of the genus *Ipomoea* whose roots are edible, and is one of the world's most important food crops due to its high yield and nutritive value (Data and Eronico, 1987). It is extensively cultivated in tropical and sub-tropical zones (Islam *et al*, 2002).

It belongs to the Convolvulaceae family and it is grown for both human and animal consumption (Nwadili *et al* 2007). This root crop will become more important in the 21st century than in the 20th century, and is expected to be used in immense quantity as raw materials for biodegradable plastics and for fuel of automobiles (Kozai *et al*., 1996a; 1996b). The cultivation and production of sweetpotato is on the increase in Nigeria (Afuape, 2006). The crop has moved up from the minor crop status it used to occupy (Agboola, 1979) to an enviable position of being the fourth most important root and tuber crop in Nigeria after cassava, yam and cocoyam. Its production has increased from 149,000 metric tones in 1961 to 106,197 million metric tons (FAO, 2007). Despite this increase, yield on farmers' fields have remained low at 6.8t/ha (Tewe *et al*., 2003).Sweetpotato is a highly recommended food security crop that can help low-income countries ride out turmoil created by food price increases (IYP, 2008).

Sweetpotato (*Ipomea batatas* L) is a major crop that suffered serious neglect in the past but now occupies global position as a source of food and industrial raw material (Njoku,2007).It is a widely grown crop in Nigeria. The high nutritive value and performance under resource-poor condition make it attractive to farmers and households (Njoku, 2006).China is the highest producer of sweetpotato in the world (75.80mt/per annum).Nigeria ranks third in the world and second in Africa with a production figure of 2.43mt (FAO, 2009). It is interesting to note that unlike cereal crops (rice, wheat and maize) sweetpotato is not a globally traded commodity and its prices are usually determined by local supply and demand.

In Nigeria, sweetpotato (*Ipomoea batatas)* production, marketing and utilisation have expanded beyond the traditional areas of the central and riverine zones to the humid, sub-humid and semi-arid regions in the last two-and-a-half decades (Tewe *et al*, 2003). Existing figures on production cost of ₦32,000/ha, ₦29,847.80/ha and ₦3,244.00/ha respectively reported by Tewe, *et al*,2003, Asumugha, 1999 and Eluagu *et al* 1989 have been overtaken by economic reforms. Ogbonna *et al*, 2005 reported production cost and gross return of ₦149,355.20/ha and ₦274,054.00/ha respectively.

Marketing according to Kohls and Uhl (1990), is concerned with all stages of operation, which aid movement of commodities from producers to consumers. The level of efficiency in the market is determined by assessing the marketing structure, conduct and performance amongst other conditions.

Market performance may be seen as a representative of market structure and conduct. The performance characteristics features of a food market rest on marketing efficiency measured by the following indicators – marketing margin, market competition, consumer prices and availability of physical marketing facilities (Barau *et al*, 1993). The performance of staple food marketing system is determined by the structural characteristics of the market and the behavioural characteristics of the market participants (Durojaiye and Showemimo, 1990).According to Anuebunwa (2008), the structural characteristics of the food market are those features of the market which seem to affect the behaviour and the performance of the market. The number and size of the sellers and buyers is a significant feature.

Many authors have agreed that generally, gross margins in food and vegetable marketing are very low due to bulkiness, which increase transportation cost and space; perishable nature of the commodity, and high risk and uncertainty (Njoku,1994; Anuebunwa, 2002,2007; Anuebunwa, *et al*., 2006).

Information on sweetpotato marketing is scanty. Consequently, there is a gap in knowledge. This gap is intended to be filled by this study. Hence, it will assess the performance of sweetpotato marketing systems in Umuahia market, Abia State with specific objectives to

1. examine the socio economic characteristics of retailers in the study area;
2. identify wholesalers and retailers in the study area;
3. assess the profitability of sweetpotato marketing system among the traders;

METHODOLOGY

The study was carried out in Umuahia main market in Abia State. The market is located within Umuahia North Local Government Area. The Local Government Area is one of the seventeen Local Government Areas in the state. Abia State is in the South-east agro ecology zone of Nigeria. The market was purposively sampled based on the fact that sweetpotatoes are always available for sale in the market all year round. Most farmers in the neighbouring states of Anambra, Imo, Ebonyi, Cross River, Akwa Ibom and Rivers bring their harvested sweetpotatoes to the market. One hundred wholesalers and one hundred retailers were randomly selected for the study. Data were collected with the aid of a well structured questionnaire. Data were collected from October to December 2009.

Data were analyzed using descriptive statistical tools (frequency tables, means and percentages). Performance of sweetpotato marketing systems was analysed using cost and returns analysis, marketing margin and market efficiency as adopted by Obasi and Mejeha 2008; Anuebunwa,2008 as follows:

Net Return (NR) = Total Return from sales – Total Marketing Cost

$$\text{Marketing Margin} = \frac{\text{Selling Price – Supply Price}}{\text{Selling Price}} \times 100$$

$$\text{Marketing efficiency} = \frac{\text{Value added by marketing (Net Profit)}}{\text{Total Marketing Cost}} \times 100$$

The Gini coefficient (G) was used to determine the structure of the sweetpotato market. It is given as

$$G = 1 - \sum_{i=1}^{k} x_1 y_1 \qquad \text{(Anuebunwa, 2008)}$$

where

x_1= percentage of sweetpotato traders in the i^{th} class of traders
y_1= cumulative percentage of sweetpotato traders in the i^{th} class of traders
k = number of classes

A situation where the Gini coefficient lies at 0 implies that the market is a perfect market with perfect equality in the distribution and 1 implies perfect inequality in the distribution signifying an imperfect market.

RESULTS AND DISCUSSION

Table 1(in the appendix) shows the socio-economic characteristics of sweetpotato traders in Umuahia market, Abia State. The table shows that male and female sweetpotato wholesalers are 74 percent 26 percent respectively while retailers are 65 percent and 35 percent. This implies gender specificity in these operations as female may perhaps be more efficient in sweetpotato retailing than male who are well disposed to source for the commodity in bulk in the rural areas. The table further reveals that about 45 percent of the wholesalers are between the ages of 30 -39 years while 52 percent of the retailers are between the ages of 40-49 years. The result is expected as respondents in these age brackets can take risks and initiatives which are expected factors in this type of marketing activities as they have the strength to move from one location to the other.

Moreover, on ownership of shops where sweetpotato is marketed, the table shows that all the respondents rented the shops and rents are paid to the revenue department of the Local Government Area. It was gathered that defaulters would have his shop locked by the local council. Table 1 revealed that none of the respondents belonged to sweetpotato traders association, implying that prices for the crop are not determined by any association. According to Anuebunwa (2008), membership in traders association offers opportunity for the creation of implicit barriers to entry and exit into the trade. This influences the nature of the market. Nevertheless, the traders have information on the marketing of the crop as sweetpotatoes are uniformly heaped for sale in the market. The table shows that the retailers have more trading experience (16-20 years) than the wholesalers (11-15 years).A similar study by Okereke and Anthonio (1988) established a significant relationship between marketing experience and volume of sales in the wholesale and retail trades.

Table 2 shows the distribution of sweetpotato wholesalers by monetary value of monthly purchases. The table reveals that N 28,215.00 was the average monthly purchases made by the wholesalers. About 7 percent of the wholesalers made monthly purchases of N275, 308.00 while 40 percent made monthly purchases of N55,060 .00. A Gini coefficient of 0.819 implies inequality in the distribution showing the market to be an imperfect market. Similarly, at the retailers' level, Table 3 shows the average monthly purchases to be N19, 987.00. A Gini coefficient of 0.797 also implies inequality in the distribution. This is in consonance with previous works by Okereke and Anthonio (1988); Anuebunwa *et al*., (2006), and Anuebunwa (2002; 2007) respectively who reported an imperfect competitive markets for staple food.

Table 4 revealed the marketing margin and the farmers' share in Umuahia market. It was shown that transportation recorded the highest cost item (N2, 000.00) at the wholesalers market while the highest cost item of N1, 500.00 was recorded for retailers. Higher marketing margin was recorded for the wholesalers than the retailers. Harrison *et al.*, (1987) reported lack of competition; cost inefficiency, greater degree of uncertainty to be likely present at the wholesale level. These factors may perhaps be responsible for higher marketing margin recorded at the wholesalers' level. The farmers' shares were 77.34 per cent and 85.40 per cent respectively for wholesalers and retailers. The implication of this is that 22.66 per cent and 14.60 per cent respectively of sweetpotato consumers' expenditure went to the marketing system. Benefit – Cost ratio of 1.15 and 1.08 respectively were recorded for both wholesalers and retailers. This implies that for every N1.00 spent on sweetpotato the traders realized N1.15 and N1.08 respectively. This shows that sweetpotato marketing is profitable.

CONCLUSION AND RECOMMENDATION

The study evaluated the performance of sweetpotato marketing system in Umuahia market, Abia State. The economic analysis showed that sweetpotato marketing system is an imperfect competitive market as shown by the results of the Gini coefficient. Moreover, the benefit- cost ratio showed that sweetpotato marketing is a profitable enterprise. The inefficiency recorded in the marketing system of sweetpotato could be improved by removing all factors that contributed to inefficiency. Government policies should be directed towards reducing transportation costs, rent charged by the Local Government authority and provision of micro credit for the traders to expand their purchases.

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Table 1: Socio-economic characteristics of sweetpotato traders in Umuahia market, Abia State

Variables	Frequency		Percentage (%)	
Sex				
Male	74	(65)	74.00	(65.00)
Female	26	(35)	26.00	(35.00)
Total	100	(100)	100.00	(100.00)
Age (yrs)				
30-39	45	(35)	45.00	(35.00)
40-49	42	(52)	42.00	(52.00)
50-59	13	(13)	13.00	(13.00)
Total	100	(100)	100.00	(100.00)
Marital Status				
Single	25	(10)	25.00	(10.00)
Married	60	(75)	60.00	(75.00)
Divorced	5	(7)	5.00	(7.00)
Widowed	10	(18)	10.00	(18.00)
Total	100	(100)	100.00	(100.00)
Educational Background				
No formal education	10	(22)	10.00	(22.00)
Primary education	73	(63)	73.00	(63.00)
Secondary education	17	(15)	17.00	(15.00)
Total	100	(100)	100.00	(100.00)
Occupation				
Full time trading	85	(73)	85.00	(73.00)
Part time trading	15	(27)	15.00	(27.00)
Total	100	(100)	100.00	(100.00)
Trading Experience (yrs)				
1-5	5	(6)	5.00	(6.00)
6-10	9	(7)	9.00	(7.00)
11-15	54	(23)	54.00	(23.00)
16-20	32	(64)	32.00	(64.00)
Total	100	(100)	100.00	(100.00)
Shop ownership				
Own shop	0	(0)	0.00	(0.00)
Rented shop	100	(100)	100.00	(100.00)
Total	100	(100)	100.00	(100.00)
Traders association				
Yes	0	(0)	0.00	(0.00)
No	100	(100)	100.00	(100.00)
Total	100	(100)	100.00	(100.00)

Source: Survey data 2009
Figures in parenthesis are for retailers

Table 2: Distribution of sweetpotato wholesalers by monetary value of monthly purchases in Umuahia market, Abia State

Monthly purchases (N)	Frequency	% of wholesalers (x_1)	Total value of monthly purchases (N)	% percentage of total value of monthly purchases	Cumulative % (y_1)	Σx_1y_1
10,000-15,000	12	40.00	55,060.00	6.50	6.50	0.026
15,001-20,000	8	26.67	119,450.00	14.11		
20,001-25,000	5	16.67	186,207.00	21.99		
30,001-35,000						
	3	10.00	210,450.00	24.90		
		6.67	275,308.00	32.50		
	Total 30	100.00	846,475.00	100.00		
	Mean		28,215.00			
	Gini-coefficient		0.819			

Source: Survey data 2009

Table 3: Distribution of sweetpotato retailers by monetary value of monthly purchases in Umuahia market, Abia State

Monthly purchases (N)	Frequency	% of wholesalers (x1)	Total value of monthly purchases (N)	% percentage of total value of monthly purchases	Cumulative % (y1)	Σx1y1
5,000- 7,000	9	45.00	25,060.00	6.27	6.27	0.028
7,001- 9,000	5	25. 00	53,503.00	13.40	19.67	0.034
9,001-11,000	3	15.00	89,670.00	22.43	42.10	0.034
11,001-13,000	2	10.00	101,304.00	25.34	67.44	0.025
13,001-15,000	1	5.00	130,205.00	32.57	100.00	0.016
Total	20	100.00	399,742.00	100.00		0.137
Mean			19,987.00			
Gini-coefficient			0.797			

Source: Survey data 2009

Table 4: Marketing margin and farmers' share in Umuahia market, Abia State

Parameters	Wholesalers(Ave. Cost N/ton)	Retailers (Ave. Cost N/ton)
Purchase price of sweetpotato (N)	40,000.00	45,600.00
Marketing cost (N)		
Variable cost:		
Transportation cost	2,000.00	1,000.00
Packaging material	200.00	-
Handling charges	100.00	100.00
Fixed cost (N)		
Rent	1,500.00	1,500.00
Security fee	1,000.00	1,000.00
Market maintenance fee	200.00	200.00
Total marketing cost (N)	5,000.00	3,800.00
Total cost (N)	45,000.00	49,400.00
Selling price (N)	51,700.00	53,410.00
Gross market margin	11,700.00	7,810.00
Marketing margin	6,300.00	4,010.00
Farmers' share (%)	77.34	85.40
Marketing efficiency (%)	12.19	7.50
Return on capital (%)	15.75	8.79
Benefit- Cost Ratio	1.15	1.08

Source: Survey data 2009